

From glowbugs@theporch.com Sun Aug 18 19:30:43 1996  
Return-Path: <glowbugs@theporch.com>  
Received: from uro (localhost.theporch.com [127.0.0.1]) by uro.theporch.com  
(8.8.Alpha.8/AUX-3.1.1) with SMTP id TAA15892; Sun, 18 Aug 1996 19:28:40 -0500  
(CDT)  
Date: Sun, 18 Aug 1996 19:28:40 -0500 (CDT)  
Message-Id: <199608190028.TAA15892@uro.theporch.com>  
Errors-To: ws4s@midtenn.net  
Reply-To: glowbugs@theporch.com  
Originator: glowbugs@theporch.com  
Sender: glowbugs@theporch.com  
Precedence: bulk  
From: glowbugs@theporch.com  
To: Multiple recipients of list <glowbugs@theporch.com>  
Subject: GLOWBUGS digest 265  
X-Listprocessor-Version: 6.0c -- ListProcessor by Anastasios Kotsikonas  
X-Comment: Please send list server requests to listproc@theporch.com  
Status: 0

#### GLOWBUGS Digest 265

Topics covered in this issue include:

- 1) Re: Crystal Grinding (fwd)  
by rdkeys@csemail.cropsci.ncsu.edu
- 2) Crystal Grinding (fwd)  
by ralph.hartwell@emachin.com (Ralph Hartwell)
- 3) Re: antenna-less regens (Knight Ocean Hopper)  
by Joseph Cooper <joe@westonia.com>

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Date: Sun, 18 Aug 1996 15:53:17 -0400 (EDT)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: jherman@hawaii.edu  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), boatanchors@theporch.com,  
Subject: Re: Crystal Grinding (fwd)  
Message-ID: <9608181953.AA100925@csemail.cropsci.ncsu.edu>

> ----- Forwarded message -----  
> Date: Sat, 17 Aug 1996 12:18:29 -1000  
> >From: Niel Wiegand <nielw@IX.NETCOM.COM>  
> To: Multiple recipients of list <boatanchors@theporch.com>  
> Subject: Crystal Grinding  
>  
> I just tried grinding a crystal here and had pretty bad luck. 300  
> figure 8's and the freq still hasn't shifted any.  
>

> Has anyone actually ground a crystal by hand?

Many. It is all in the technique and the choice of grinding media.

> What size crystal were you working with? FT243: 1/2" x 1/2"?

FT-243, FT-171, R1, plus xtals from TCS, and others.....

> What did you use for grinding compound? Turtle Wax Rubbing Compound?

I usually use automotive body finishing paper cut into 1/4 sheets that are 1500 grit, with distilled or clean water as the grinding lubricant.

> How long did it take to shift freq, say, 10KC?

10khz should move in about 1 minute using the 1500 grit paper. Using comet cleanser, an alternative grinding medium, it takes about 3 minutes, if my memory from the novice days goes right.

MAKE SURE YOU GRIND ON AN OPTICALLY FLAT SURFACE. I RECOMMEND A SHEET OF PLATE GLASS 3/8 INCH THICK ABOUT 1 FOOT SQUARE AS A GOOD GRINDING SHEET.

Keep a spare xtal holder for testing that you use a rubber band or two to hold together for testing rather than the screws normally used. It goes a LOT faster that way.

CHECK YOUR GRINDING AFTER EVERY MINUTE OR SO OF GRINDING TO MAKE SURE YOU DON'T OVERSHOOT YOUR TARGET FREQUENCY. ONCE CLOSE TO YOUR TARGET FREQUENCY, CHECK AFTER EVERY 10 SECONDS OF GRINDING.

Grind using a figure 8 motion is fine, or use a continuously turning motion where you rotate the blank about 45 degrees after every few seconds of grinding.

Dress grind the edges of the blank to the proper bevel at the end of each grinding action, before testing. Be careful not to knock the corners off in dressing the edges.

I am sure others have their pet methods, but this has worked fine for me over the years, and I have routinely moved blanks up as much as 300 or 400 khz at 40 meters and 200 khz at 80 meters. My best luck on 160 meters has been about 75 khz.

> tnx es 73, Niel - WA5VLZ

Yer most welcome. And Good Luck!

73/ZUT DE NA4G/Bob UP

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Date: Sun, 18 Aug 1996 21:34:00 GMT  
From: ralph.hartwell@emachine.com (Ralph Hartwell)  
To: glowbugs@theporch.com  
Subject: Crystal Grinding (fwd)  
Message-ID: <960818161453579@emachine.com>

J>I just tried grinding a crystal here and had pretty bad luck. 300  
J>figure 8's and the freq still hasn't shifted any.

J>Has anyone actually ground a crystal by hand?

Yes, but that was quite a few years ago.. back in the '50's..

J>What size crystal were you working with? FT243: 1/2" x 1/2"?

FT-243 usually.

J>What did you use for grinding compound? Turtle Wax Rubbing Compound?

I generally used either toothpaste or #800 abrasive grit left over from my telescope mirror grinding endeavors. I used a plate glass grinding plate to grind the xtal against, but you must shift the position of the xtal on the glass occasionally, as the glass grinds as fast as the xtal and will become uneven. If the faces of the crystal become non-parallel, the xtal will quit oscillating. I would usually take a little bit off of the corners a few strokes at a time to tweak the frequency. If it required more than that, I flat-face ground the xtal a bit.

J>How long did it take to shift freq, say,10KC?

Depended on the abrasive, the grinding pressure (careful! you can easily crack the xtal!) and the original freq. Usually I could get somewhere near where I wanted it to be within 10 minutes or so of grinding. This was after some experience in grinding them - the first ones took me more like a half hour.

I listened to the RF noise the xtal made when it was being ground to track the freq change as I ground it. I stopped a bit before I got to the wanted freq since the xtal usually oscillated a few Kc higher when it was clean and dry. To do this you put a metal plate under the glass plate you are grinding the xtal on, and connect the plate to a sensitive

receiver. You will usually hear white noise sharply peaked at the freq of the xtal as you grind. That makes it easy to track where you are in the grinding process.

BTW - you must make sure the xtal is clean and dry before using it or it will tend to drift. Finger oils and grease cause no end of problems with stability. I cleaned them in distilled water and then alcohol and assembled the xtals in the holders while wearing cotton gloves.

Ralph W5JGV

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. QMPro 1.53 . Trees are nature's way of saying "Your driving is bad."

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Date: Sun, 18 Aug 96 19:49 EDT  
From: Joseph Cooper <joe@westonia.com>  
To: wallace@mc.com  
Cc: glowbugs@theporch.com  
Subject: Re: antenna-less regens (Knight Ocean Hopper)  
Message-ID: <1.5.4.16.19960818195553.384f0ef8@mail.westonia.com>

At 06:48 AM 8/16/96 -0500, you wrote:

>A longtime SW DXer friend of mine recently bought  
>something he had in his youth -- a Knight Ocean Hopper.  
>It hummed pretty badly, and he asked me to fix it...  
>

I am currently in the process of restoring a Knight Spanmaster kit so I would be interested in knowing more about the 'Hopper'; particularly if it pre-dated the Spanmaster.

Frankly, be thankfull that your set humms. Mine's dead (though there is voltage going through the set and I can get audio through the AF section) and it looks like a complete rebuild will be in order.

My hope is to be able to get it working well enough to 'couple' it with a one tube xmitter that I'm working on as well. The idea is to try working 80 meters with it as I would not trust the recv set to have good enough sensitivity in the higher bands.

tnx and 73's

\* Joseph Cooper-VE3FMQ QTH-East York-near Toronto Ontario Canada \*  
\* Interests are:- BCB and VLF Radio-Woodworking-Steam Railroads - \*  
\* -Nikola Tesla-Antique Radios-Crystal Radios-Travel-Burmese Cats \*  
\* FAX (416) 423-7782 9:00pm to 5:00pm EDST Monday To Friday Only \*

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End of GLOWBUGS Digest 265

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